

Date: Monday, 22/09/2008 1:15:18 PM
 User: Julie Lecocq

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	FLOAT SKIDTUBE ASSEMBLY
Job Number :	42166A		
Estimate Number :	10309		
P.O. Number :		Part Number :	D206642541
This Issue :	22/09/2008	Drawing Number :	D3274 REV D
Prsht Rev. :	NC	Project Number :	N/A
First Issue :	//	Drawing Revision :	D
Previous Run :	42165A	Material :	
Written By :		Due Date :	06/10/2008
Checked & Approved By :	<u>JUL 08.9.22</u>	Qty:	1
Comment :	Est Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM Est Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM Est Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD Est Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC Est Rev:F 08-06-02 add comment DD verified by:EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
-----	----	------------------



Comment: DOCUMENT CONTROL

Photocopy bluefile & type labels per PPP D206-642-541 CHG003

N/A

2.0	D26001190	Extrusion Round 3" 206
-----	-----------	------------------------



Comment: Qty: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2600-1-190 3" OD Tube

D31032

25 08-10-02

3.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1- Bend FWD end of tube using bend prog D3274 FWD dwg D3274

2- Cut AFT end of tube at 170.9" as per dwg D3274 and deburr end

3-Drill #40 Aft cap pilot hole using DT8025

4-Cleco DT8025 in position and install pilot hole drill Jig DT8742A,B,C,D. Drill 3/16" pilot holes as per Dwg D3274

5-Remove inner indexing ridge on fwd and aft end of skidtube as per Dwg D3274

6-Open aft end cap holes to Ø0.208" as per Dwg D3274. Deburr aft end.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Drawing Name: FLOAT SKIDTUBE ASSEMBLY

Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:

Machine Or Operation:

Description :

7-Weld Fwd Cap as per Dwg D3274 and QSI 004. Use aluminum rod.

A/R Aluminum Rod

~~m108708/m107877~~ BE 08/09/25

m109213
BE 08/10/02

8-Grind welds flush to Fwd cap on top surface only.

BE 08/10/02

4.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid Etch and Alodine tube as per QSI 005 4.1

JD 8-10-6

5.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

JD 8-10-7

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

JD 8-10-8

7.0

D3282041

Float Web (206L/407)



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D3282-041 Float Web

42319

JD 8-10-7

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open Ø0.313" and 0.375" crossbolt spacer holes using DT8743 as per Dwg D3274

2-Deburr crossbolt spacer holes as per Dwg D3274 and blow out chips from inside the tube

3-Bond web in place as per Dwg D3274 & QSI 015.

A/R Sikaflex-291

Sikaflex expire date:

Start: 8-10-7

Finish: 8-10-8

(Adhere for 12 hours)

Time: 4:20

Time: 11:30 AM

JD 8-10-7

JD 8-10-7

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:

Machine Or Operation:

Description :

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

SL 08-10-09

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Bend AFT end of tube using bend prog. D3274 AFT as per dwg D3274. Install drop pins in crossbolt spacer holes to maintain web position.

SL 08-10-09

2- DRILL PILOT HOLES FOR WEARPLATES USING D3274-1T2
OPEN HOLES TO .297"

3-DRILL TOE PIN HOLE .640" DIA AS PER DWG USING DT8935 FWD END OF TUBE
DEBURR INSIDE OF HOLE AS NECESSARY (DO NOT ENLARGE HOLES)
REMOVE ANY FOREIGN OBJECTS INSIDE OF TUBES

SL 08-10-9

4- Countersink crossbolt spacer holes as per Dwg D3274

5- prepare for welding

SL 8-10-11

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

SL 08-10-17

12.0

D32851

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description Batch

1 D3285-1

Fwd Cap

SL 08-10-09

13.0

D2649

Cross Bolt Spacer



Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)

Pick:

Qty Part Number

Description Batch

12 D2649

Crossbolt spacer

SL 8-10-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:

Machine Or Operation:

Description :

14.0

D32751

Crossbolt Spacer



Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)

Pick:

Qty Part Number Description Batch

12 D3275-1 Crossbolt spacer

30290

SL 8-10-11

15.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Insert D2649 & D3275-1 crossbolt spacers. Weld as per QSI 004 and Dwg D3274. Remember to back drill each hole before welding the other side. Use aluminum rod

A/R Aluminum Rod M1092K3 BE 08-10-20

3-Grind cross bolt welds flush as per Dwg D3274.

JB 8-10-20

4-Counterbore 5/16" x 0.750" deep as per Dwg D3274. Use DT8743 visual aid Jig and deburr.

JB 8-10-21

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

17.0

QC10

VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

18.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Pressure wash as per QSI 005

M-1

08/10/25

19.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

11:40
320°F
12:10

M-1 08/10/25

W/O:		WORK ORDER CHANGES					
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Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:

Machine Or Operation:

Description :

20.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

08-10-28

(X)

21.0

D3415041

Nut Plate



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch
1 D3415-041 Nut Plate 1333842

96A

22.0

CCR264SS33

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch
2 CCR264SS3-3 Rivet M1101938

96A *

23.0

CR3212403

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch
2 CR3212-4-03 Rivet M15984

96A *

24.0

ALS71032130

Insert



Comment: Qty.: 78.0000 Each(s)/Unit Total: 78.0000 Each(s)

Insert

Batch: M1105819

96A *

25.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

✓ 1-Install Nut Plate as per Dwg D3274. Apply LPS-3 to Nut Plate and rivets.
A/RN/ALPS-3 M1107912

2

2-Install inserts as per Dwg D3274. Use a drop of Sikaflex inside insert holes a

96A 08-10-28 (X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Drawing Name: FLOAT SKIDTUBE ASSEMBLY

Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:

Machine Or Operation:

Description:

A/R Sikaflex-291 M1109449
Sikaflex expire date: 08/11

ew

08.10.28

(X)

26.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP
Inspect Nut Plate & Inserts

ew 08.10.28

27.0

AN3C4A

BOLT



Comment: Qty.: 80.0000 Each(s)/Unit Total: 80.0000 Each(s)
BOLT
Batch: M1109431

ew

28.0

D353515

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
WEARSHOE
Batch: B342233

ew

29.0

D353523

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
WEARSHOE
Batch: B339134

ew

30.0

D353535

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
WEARSHOE
Batch: B336425

ew

31.0

D353539

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
WEARSHOE
Batch: B342328

ew

32.0

D353615

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
GASKET
Batch: B340287

ew

08.10.28

(X)

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #:	Machine Or Operation:	Description :
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33.0	D353623	Gasket
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch: 13339165 *JA*

34.0	D353635	Gasket
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch: 1338905 *JA*

35.0	D353639	Gasket
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch: 1333966 *JA*

36.0	D35371	Wearpad
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Comment: Qty.: 9.0000 Each(s)/Unit Total : 9.0000 Each(s)

WEARPAD

Batch: (1x) B41082* (8x) 1342235 *JA*

37.0	D35373	Wearpad
------	--------	---------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARPAD

Batch: 1335697 *JA*

38.0	AN960C10L	washer
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Comment: Qty.: 80.0000 Each(s)/Unit Total : 80.0000 Each(s)

Pick:

Qty Part Number

Description Batch

80 AN960C10L

Washer (16x) M109282 (64x) M109545 *JA*

39.0	D36721	Phenolic Washer
------	--------	-----------------



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Washer

batch 1339275 *JA*

08.10.28

(X1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Job Number: 42166A

Part Number: D206642541

Job Number:



Seq. #: Machine Or Operation: Description :

40.0 D34131 Ring



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D3413-1 Ring B33949 *HL*

41.0 AN4C5A BOLT



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 AN4C5A Bolt M104936 *HL*

42.0 AN960C416 washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 AN960C416 Washer M100993 *HL*

43.0 D2646 Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2646 Aft Cap B41435 *HL*

44.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

✓ 2-Install wearpads & gaskets as per Dwg D3274.

3-Install ring as per Dwg D3274

✓ A/R Sikaflex-291 M109449

Sikaflex expire date: 08/11

✓ 4-Inspect for foreign objects as per QSI 024

5-Spray inside of tube on both sides of web with LPS-3

✓ A/R LPS-3 Batch: M1107912

HL

08-10-28

(X1)

W/O:		WORK ORDER CHANGES					
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Job Number:



Seq. #:

Machine Or Operation:

Description :

6-Install Aft Cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-291

Sikaflex expire date:

M109449

08/11

08-10-28 (XU)

45.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08/10/28 (XU)

46.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock

Location:

PPP42166

08/10/30 (XU)

47.0

QC21

FINAL INSPECTION/W/O RELEASE



08/10/31 (XU)

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF 08-10-30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries



DESIGN CP	DRAWN BY PH	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED #	APPROVED #	DRAWING NO. D3274	REV. D SHEET 1 OF 4
DATE 06.12.19		TITLE SKIDTUBE ASSEMBLY	SCALE NTS
A	04.03.15	NEW ISSUE	
B	04.08.09	MOVE SADDLE HOLE: 42.14 WAS 42.76	
C	05.03.16	ADD -043; NEW INSERTS	
D	06.12.19	NEW INSERTS, SS WEARSHOE + GASKET	

RELEASED

07.02.12 **#**

Qty -041	Qty -043	Part Number	Description
X		D3274-041	SKIDTUBE ASSEMBLY
	X	D3274-043	SKIDTUBE ASSEMBLY
1	1	D2600-1-240	EXTRUSION
1	1	D2646	AFT CAP
12	12	D2649	CROSS BOLT SPACER
12	37	D3275-1	CROSS BOLT SPACER
1	1	D3282-041	FLOAT WEB
1	1	D3285-1	CAP
1	1	D3413-1	RING
1	1	D3415-041	NUT PLATE
1	1	D3535-15	WEARSHOE
1	1	D3535-23	WEARSHOE
1	1	D3535-35	WEARSHOE
1	1	D3535-39	WEARSHOE
1	1	D3536-15	GASKET
1	1	D3536-23	GASKET
1	1	D3536-35	GASKET
1	1	D3536-39	GASKET
9	9	D3537-1	WEARPAD
1	1	D3537-3	WEARPAD
78	78	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, AELS-1032-130)
80	80	AN3C4A	BOLT
1	1	AN4C5A	BOLT
1	1	AN960C416	WASHER
80	80	AN960C10L	WASHER
2	2	CCR264SS3-3	RIVET
2	2	CR3212-4-03	RIVET
2	2	NAS1515H3L	WASHER

GENERAL NOTES:

1. TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
2. DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 7 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
3. ALL HOLES DRILLED ON CENTERLINES.
4. BOND D3282-041 FLOAT WEB INTO D3274-1/-3 OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
5. WELDING TO BE DONE PER DART QSI 004.
6. FINISH: - ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1
- POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
7. DRILL Ø0.297 HOLES FOR ALS7-1032-130 INSERTS USING DT3274-1T2 BEFORE FINISH. INSTALL ALL 78 130 INSERTS AFTER FINISH. SEAL WEARSHOE BOLTS WITH SIKAFLEX -241/-291.
8. SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

SHOP COPY
RETURN TO
ENGINEERING

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. **42160A**

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NO. 178

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliot
Job number: B42165A
Part number: A200-6642-541
Description: SKID PUMP
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David L. L... Date of Test Coupon 08/10/20

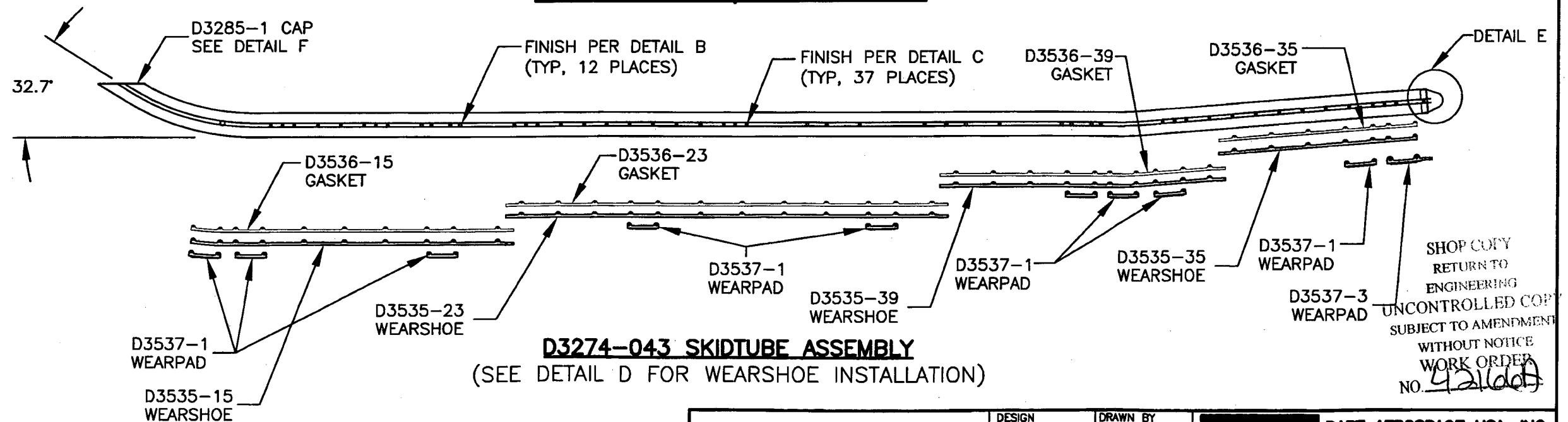
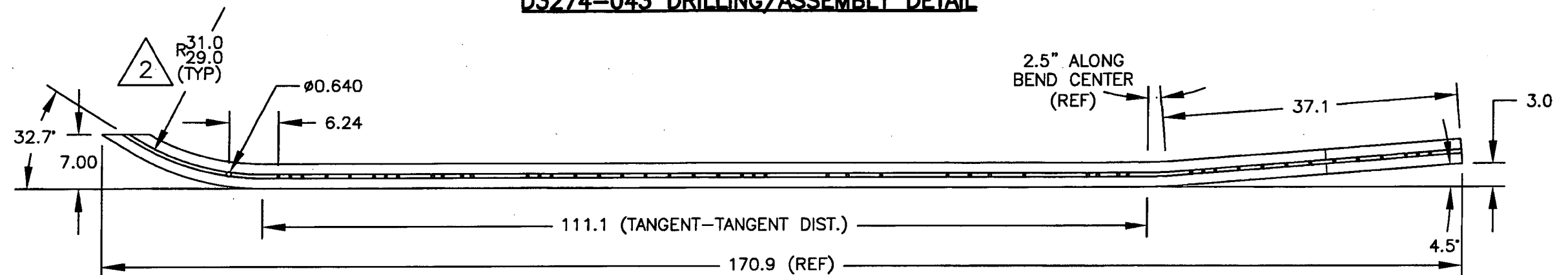
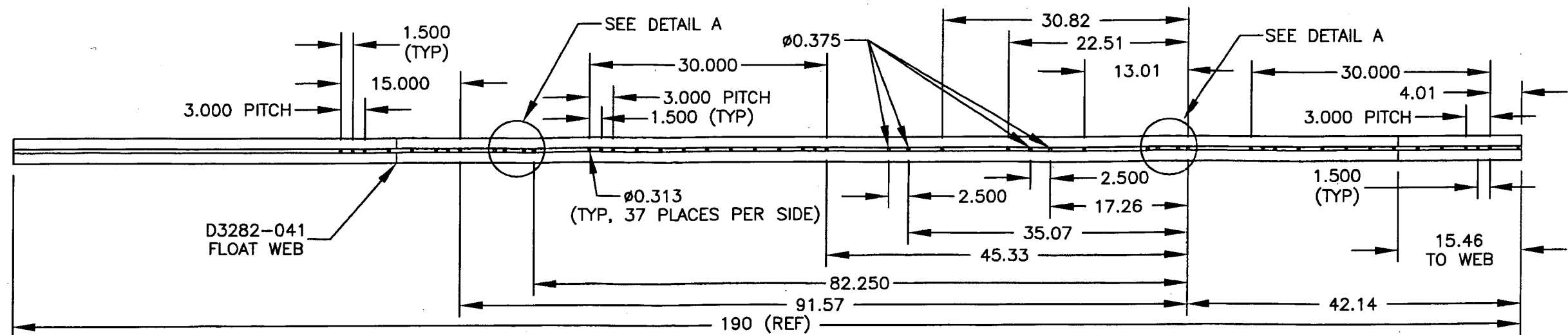
Welder Barclay Elliot Date of Test Coupon 08/10/20

The above named individual is qualified in accordance with AWS D17.1.2001 to weld



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WORK ORDER
NO 4216011



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07.02.12

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SKIDTUBE ASSEMBLY

REV. D

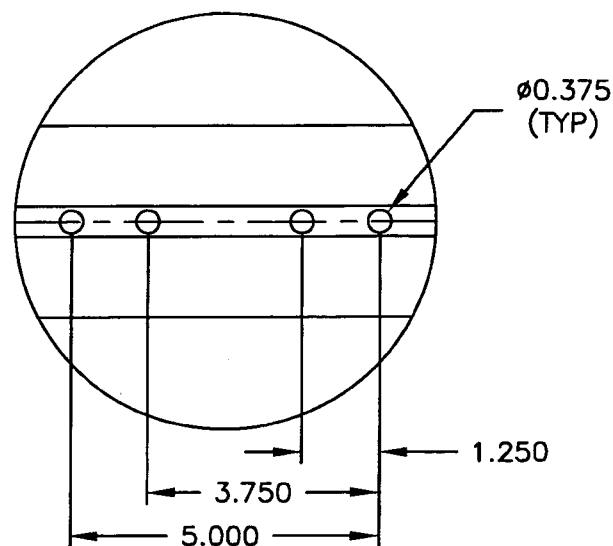
SHEET 3 OF 4

SALE

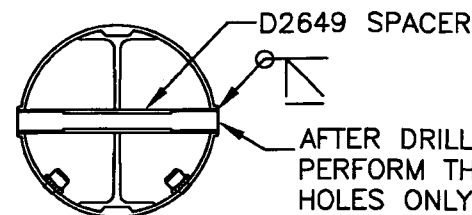
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DETAIL A: DRILL DETAIL

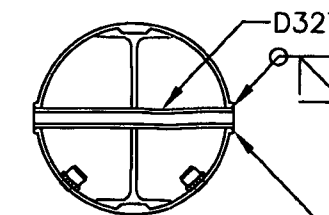


DETAIL B
FOR Ø0.375 HOLES ONLY



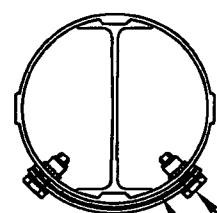
- AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.375
HOLES ONLY:**
- 1. CHAMFER HOLE 0.030x45°**
 - 2. INSERT D2649 SPACER**
 - 3. WELD INTO PLACE AND GRIND FLUSH**
 - 4. C'BORE TO Ø0.313x0.75 DEEP**

DETAIL C
FOR $\phi 0.313$ HOLES ONLY



CHAMFER 0.030x45°
(TYP)

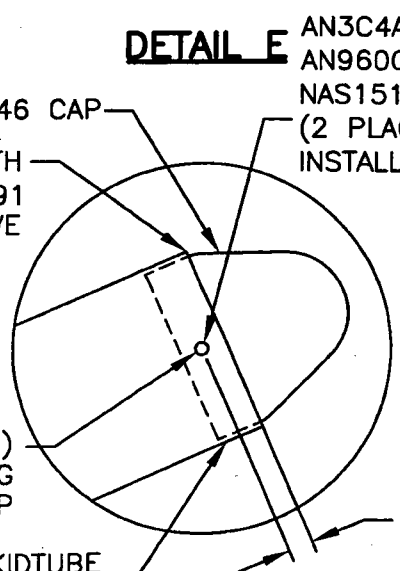
DETAIL D



- ALS7-1032-130 INSERT (1)
AN3C4A BOLT (1)
AN960C10L WASHER (1)
(78 PLACES)

- GASKET/WEARSHOE/WEARPAD (REF)

DETAIL E



- AN3C4A BOLT (1)
AN960C10L WASHER (1)
NAS1515H3L WASHER (1)
(2 PLACES)
INSTALL WITH SIKAFLEX-241/-291

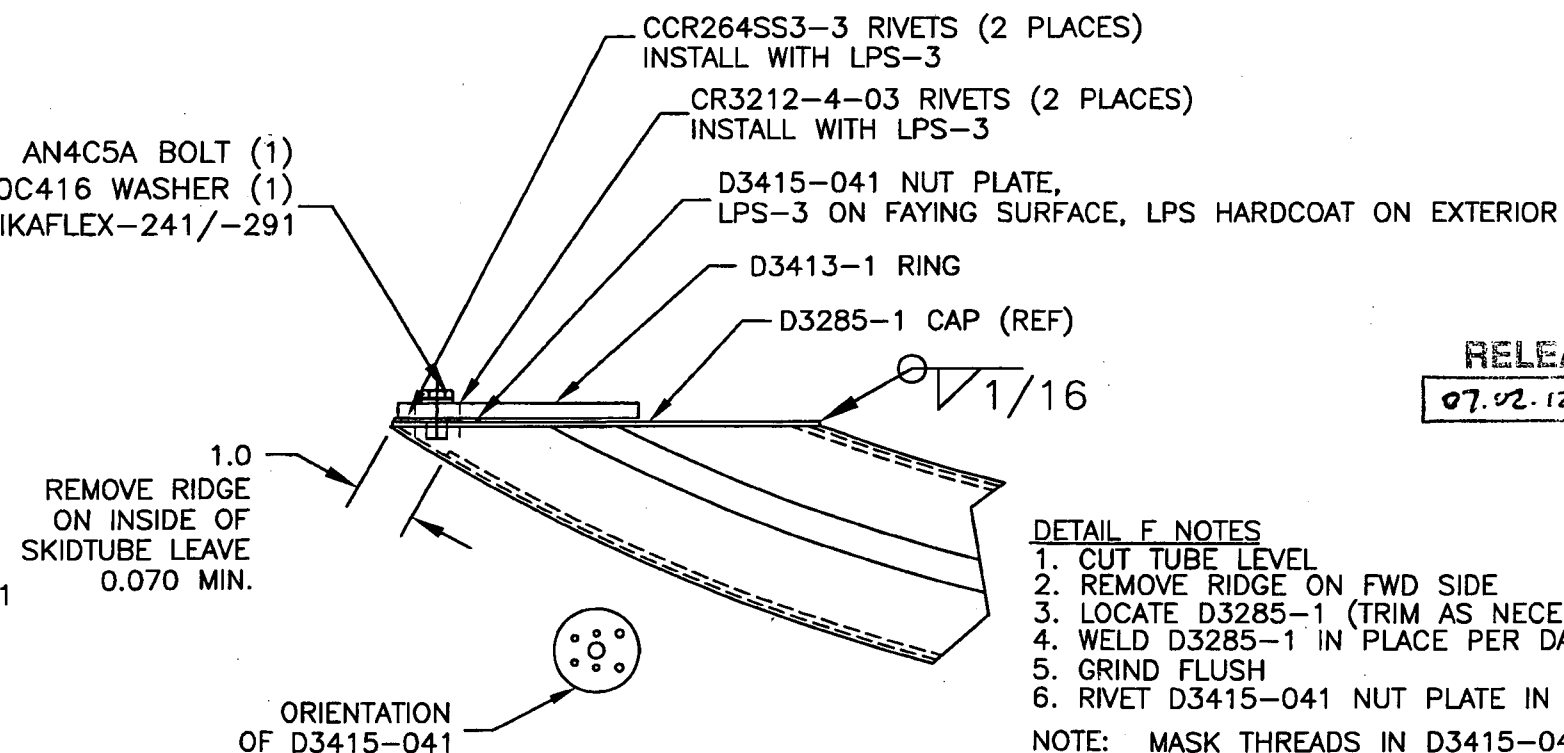
SEAL WITH
X-241/291
ADHESIVE

Ø0.208 (2 PLACES)
DRILL PRIOR TO INSTALLING
D2646 CAP

BORE OUT END OF SKIDTUBE
TO 0.75 DEPTH AND 0.070 WALL

0.400

DETAIL F: END FINISHING DETAIL



ORIENTATION
OF D3415-041

DETAIL F NOTES

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D3285-1 (TRIM AS NECESSARY)
4. WELD D3285-1 IN PLACE PER DART
5. GRIND FLUSH
6. RIVET D3415-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D3415-041
PRIOR TO FINISH

RELEASED

07.02.12 #

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DART DART AEROSPACE USA, INC.
PORT MANLYCK WA

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REV. D

SHEET 4 OF 4

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06.12.19

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SKIDTUBE ASSEMBLY

SCALE

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